

REMARKS/ARGUMENTS

The Status of the Claims.

Claims 1-10, 12-13, and 15-42 are pending with entry of this amendment, claims 11, 14 and 43-67 being cancelled in a previous amendment. Claims 1, 19 and 37 are amended herein. These amendments introduce no new matter and support is replete throughout the specification. These amendments are made without prejudice and are not to be construed as abandonment of the previously claimed subject matter or agreement with any objection or rejection of record. Because the amendments place the claims in condition for allowance, or simplify issues for appeal, entry of the amendment, pursuant to 37 C.F.R. § 1.116 is respectfully requested.

With respect to claims 1 and 19, support for the group III-V, group II-VI or group IV semiconductors or alloy compositions can be found in the specification at, for example, paragraphs [0106] to [0107]. With respect to claim 37, support for the substantially parallel alignment of the nanostructure long axes with the substrate can be found in the specification at, for example, paragraphs [0018], [0039] to [0042], and [0057] to [0058]. Applicants submit that no new matter has been added to the application by way of the above Amendment. Accordingly, entry of the Amendment is respectfully requested.

35 U.S.C. §102.

CLAIMS 37-42 ARE NOT ANTICIPATED BY MAJUMDAR

Claims 37-42 were rejected under 35 U.S.C. §102(b) as allegedly anticipated by Majumdar (USPN 6,882,051). Applicants traverse.

In order for a reference to anticipate an invention, the reference must teach each and every element of the claimed invention. Claims 37-42 as amended are drawn to pluralities of clusters of structurally ordered nanostructures dispersed in a matrix on a surface of a substrate, in which the long axes of the nanostructures are aligned substantially parallel to the substrate surface. Majumdar is alleged to teach or describe elongated structurally-oriented nanowires in a matrix as depicted in Figure 30. However, Majumdar does not teach or disclose compositions in which the long axes of the nanostructures are aligned substantially parallel to the substrate surface. Rather, the Majumdar nanostructures are

Appl. No. 10/656,911
Amdt. Dated November 9, 2006
Reply to Office action of September 11, 2006

prepared with the long axes perpendicular to the substrate upon which they are grown (see for example column 11, lines 35-44, column 11, lines 57-59, column 24 line 63 through column 25, line 2, and Figures 12, 25 and 30). Since Majumdar does not teach every element of the claimed invention, Applicants submit that the rejection is improper and respectfully request that it be withdrawn.

THE CLAIMS ARE NOT ANTICIPATED BY MATYJASZEWSKI

Claims 1-10, 12-13, 15-18 and 31 were rejected under 35 U.S.C. §102(b) as allegedly anticipated by Matyjaszewski (USPN 7,056,455). Applicants traverse.

As noted above, in order for a reference to anticipate an invention, the reference must teach each and every element of the claimed invention. Claim 1 as amended is drawn to compositions having a plurality of structurally ordered nanostructures in a matrix comprising one or more components that are chemically cross-linked or capable of chemically cross-linking to one or more of the nanostructures, wherein the nanostructures comprise group III-V, group II-VI or group IV semiconductors or alloys, and wherein the one or more matrix components interact to form a plurality of receiving structures capable of accommodating the nanostructures and providing ordering and/or orientation of the nanostructures. Claim 31 is drawn to compositions having a plurality of structurally ordered nanostructures, wherein members nanostructures comprise spherical, ovoid, elongated or branched structures of group III-V, group II-VI or group IV semiconductors or alloys, and having one or more alignment ligands associated therewith. The alignment ligands on adjacent member nanostructures interact, thereby structurally ordering the plurality of nanostructures.

Matyjaszewski is alleged to teach or describe a plurality of structurally ordered nanostructures in a matrix. However, Matyjaszewski is directed to carbon based structured materials; the cited art does not teach or describe nanostructures comprising group III-V, group II-VI or group IV semiconductors or alloys (e.g., inorganic semiconductors). Since Matyjaszewski does not teach every element of the claimed invention, Applicants submit that the rejection is improper and respectfully request that it be withdrawn.

35 U.S.C. §103(a).

Claims 19-30 and 32-36 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Matyjaszewski in view of Ying et al. (USPN 5,958,367). Applicants traverse.

Three requirements must be met for a *prima facie* case of obviousness. First, the prior art reference must teach all of the limitations of the claims. M.P.E.P. § 2143.03. Second, there must be a motivation to modify the reference or combine the teachings to produce the claimed invention. M.P.E.P. § 2143.01. Third, a reasonable expectation of success is required. M.P.E.P. § 2143.02. The teaching or suggestion to combine and the expectation of success must be both found in the prior art and not based on Applicants' disclosure. M.P.E.P. § 2143.

The cited art does not meet these criteria. First, Matyjaszewski and Ying, alone or in combination, do not teach all of the limitations of the claims. Claims 19-30 and 32-36 as amended are drawn to compositions comprising a plurality of structurally ordered nanostructures comprising group III-V, group II-VI or group IV semiconductors or alloys and one or more alignment ligands, where alignment ligands on adjacent nanostructures interact, thereby structurally ordering the plurality of nanostructures. Matyjaszewski is alleged to teach the nanostructures of the claimed invention; however, Matyjaszewski is directed to carbon based structured materials, and does not teach or describe nanostructures comprising group III-V, group II-VI or group IV semiconductors or alloys. Ying does not remedy this deficit. Thus, since the cited art (alone or in combination) does not teach all of the limitations of the claims, the first criterion for proving a *prima facie* case of obviousness has not been met. With respect to the second and third criteria, the Office has not provided any motivation to modify the carbon-based Matyjaszewski compositions to produce the plurality of structurally ordered inorganic semiconductor nanostructures of the subject invention, or a reasonable expectation of successfully producing the subject invention upon combination of these publications.

Thus, Applicants maintain that the claimed invention is not rendered unpatentable over Matyjaszewski and Ying, alone or in combination, because the cited references do not teach the limitations of the claimed invention, there is no motivation to combine the cited references, and there would not have been a reasonable expectation of

Appl. No. 10/656,911
Amdt. Dated November 9, 2006
Reply to Office action of September 11, 2006

successfully combining these references to achieve the compositions of the claimed invention. Applicants submit that the rejection is improper and respectfully request that it be withdrawn.

CONCLUSION

In view of the foregoing, Applicants believes all claims now pending in this application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the claims are deemed not to be in condition for allowance after consideration of this Response, a telephone interview with the Examiner is hereby requested. Please telephone the undersigned at (510) 337-7871 to schedule an interview.

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Respectfully submitted,



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Attachments:

- 1) A transmittal sheet; and
- 2) A receipt indication postcard.

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